

--The present invention provides:

an animal cell expressing a gene coding a ligand-responsive transcription control factor and securely maintaining a DNA comprising in a molecule, the following genes (a) and (b):

(a) a reporter gene connected downstream from a transcription control region, in which said transcription control region substantially consists of a recognition sequence of said ligand-responsive transcription control factor and a minimum promoter which can function in said cell; and

(b) a selective marker gene which can function in said cell;

provided that the following gene (c):

(c) a reporter gene connected downstream from a promoter which transcription activity is unchanged by having said responsive transcription control factor contacted with a ligand of said ligand-responsive transcription control factor, said reporter gene (c) coding a protein which can be differentiated from the protein coded by said gene (a)

is not present in said cell;

the cell according to the above, wherein said minimum promoter substantially consists of a TATA box;

the cell according to the above, wherein said ligand-responsive transcription control factor is one selected from an aryl hydrocarbon receptor, intranuclear hormone receptor, estrogen receptor, androgen receptor and thyroid hormone receptor;

① the cell according to the above, wherein said ligand-responsive transcription control factor is an aryl hydrocarbon receptor;

the cell according to the above, wherein said ligand-responsive transcription control factor is an intranuclear hormone receptor;

the cell according to the above, wherein said ligand-responsive transcription control factor is an estrogen receptor;

the cell according to the above, wherein said ligand-responsive transcription control factor is an androgen receptor;

the cell according to the above, wherein said ligand-responsive transcription control factor is a thyroid hormone receptor;

an animal cell expressing an aryl hydrocarbon receptor and an Arnt receptor, and securely maintaining a DNA comprising in a molecule, the following genes (a) and (b):

(a) a reporter gene connected downstream from a transcription control region, wherein said transcription control region substantially consists of a recognition sequence of said aryl hydrocarbon receptor and a minimum promoter which can function in said cell and

(b) a selective marker gene which can function in said cell;

provided that the following gene (c):

(c) a reporter gene connected downstream from a promoter which transcription activity is unchanged by having said responsive transcription control factor contacted with a ligand of said ligand-responsive transcription control factor, said reporter gene (c) coding a protein which can be differentiated from the protein coded by said gene (a) is not present in said cell;

use of an animal cell for evaluating an agonist activity or antagonist activity of a chemical substance over the transcription promoting ability of a ligand-responsive transcription control factor, in a reporter assay measuring the

amount of a reporter gene under transcription control of said ligand-responsive transcription control factor;

a method for evaluating a chemical substance to have agonist activity over the transcription promoting ability of a ligand-responsive transcription control factor, said method comprising:

(i) culturing an animal cell in the presence of the chemical substance;

(ii) measuring the expression amount of a reporter gene in said cell and

(iii) assessing said chemical substance to have agonist activity over the transcription promoting ability of the ligand-responsive transcription control factor when the measured value of expression amount of said reporter gene introduced into said cell is larger than a measured value of expression amount of said reporter gene in the absence of said chemical substance;

a method for evaluating a chemical substance to have antagonist activity over the transcription promoting ability of a ligand-responsive transcription control factor, said method comprising:

(i) culturing an animal cell in the presence of the chemical substance and a ligand of said ligand-responsive transcription control factor;

(ii) measuring the expression amount of a reporter gene in said cell and

(iii) assessing said chemical substance to have antagonist activity over the transcription promoting ability of the ligand-responsive transcription control factor when the measured value of expression amount of said reporter gene introduced into said cell is smaller than a measured value of expression amount of said reporter gene in the presence of said ligand and the absence of said chemical substance;

a measuring kit comprising an animal cell;

a method for obtaining an animal cell for measuring the ability to control the activity of a ligand-responsive transcription control factor, said method comprising:

(i) introducing into an animal cell, a DNA comprising in a molecule the following genes (a) and (b):

(a) a reporter gene connected downstream from a transcription control region, wherein said transcription control region substantially consists of a recognition sequence of said ligand-responsive transcription control

factor and a minimum promoter which can function in said cell, and

(b) a selective marker gene which can function in said cell,

said animal cell being

an animal cell that comprises a DNA comprising a gene coding the ligand-responsive transcription control factor introduced thereto before, after or during the same time of above step (i) or that naturally having an ability to express the gene coding the ligand-responsive transcription control factor,

provided that a reporter gene (c) connected downstream from a promoter which transcription activity is unchanged by having said responsive transcription control factor contacted with a ligand of said ligand-responsive transcription control factor, said reporter gene (c) coding a protein which can be differentiated from the protein coded by said gene (a), is not present in the cell; and

(ii) recovering from the transformed cell obtained from step (i), a transformed cell having said introduced DNA securely maintained therein;